

ABSTRACT

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A highly automated, high volume multichannel pipetting system which transfers liquid from mother plates to daughter plates, or from a fill station to daughter plates. The mother plates are stacked in one set of stacker assemblies, while the empty daughter plates are stacked in another stacker assembly. A plate handling assembly which is capable of moving the plates in three orthogonal directions retrieves the plates from the stacker assemblies, carries them to the pipetting head, and returns them to other stacker assemblies. The pipetting head is removable for replacement or repair thereof, or for insertion of another head assembly having a different number of pipetting channels. The head slides into the housing on slideways, and is retained in place by manually operable, threaded knobs mounted on shafts. The stacker assemblies include a chimney which is removable from a base. The plates may be stacked in the chimney and then inserted on the base. The base includes solenoids whose arms are retractable to permit plates to be retrieved or replaced one at a time. The chimneys contain flaps which serve to retain the plates within the chimney if manually removed from the base. Doors in the stacker chimneys allow manual insertion and replacement of plates. Methods of operation of the pipetting system are also disclosed.

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